

BEST AVAILABLE COPY**III. CLAIM AMENDMENTS**

1. (Currently Amended) A method in a direct conversion receiver for processing a received radio signals signal, that are modulated and centered at a carrier frequency, the modulation extending a sideband above and below the carrier frequency, the method comprising the steps of:

mixing a local an oscillator frequency signal with said received radio signals signal for generating baseband frequency signals, wherein said received signal is modulated and centered at a carrier frequency, and the modulation extends a sideband above and below the carrier frequency;

filtering out generated ~~disturbing~~ direct current (DC) components of said baseband signals centered at the zero frequency;

setting said ~~local~~ oscillator frequency signal equal to or about the carrier frequency plus an offset frequency, said offset frequency being equal to or about the difference between the carrier frequency and a null frequency, said null frequency centered at a notch of said sideband; and

centering said notch at the zero frequency of said baseband signals through mixing.

2. (Currently Amended) A direct conversion receiver for processing ~~modulated radio signals~~ a signal, that are centered at a carrier frequency, the modulation extending a sideband above and below said carrier frequency, the receiver comprising:

~~a means for~~ at least one circuit element for receiving and splitting said signals signal, said signal being centered at a carrier frequency and has modulation extending a sideband above and below said carrier frequency ~~said means~~ the at least one circuit element having a first signal output and a second signal output;

~~a local an oscillator means tuned to a local oscillator for~~ providing a frequency and having a first frequency output and a second frequency output, said second frequency output having a phase shift compared with said first output;

a first mixer ~~means~~ coupled to said first signal output and first frequency output for generating a baseband frequency in-phase signals signal;

a second mixer ~~means~~ coupled to said second signal output and second frequency output for generating a baseband frequency quadrature phase signals signal;

a first ~~filtering means~~ filter for the suppression of said in-phase ~~signals~~ signal centered at the zero frequency;

~~a second filtering means~~ filter for the suppression of said quadrature ~~signals~~ signal centered at the zero frequency;

wherein the receiver is configured to provide a local oscillator frequency that is ~~set~~ equal to or about the carrier frequency plus an offset frequency, said offset frequency being equal to or about the difference between the carrier frequency and a null frequency, said null frequency centered at a notch of said sideband, for centering said notch at the zero frequency of said baseband signals through mixing.

3. (Currently Amended) A direct conversion receiver according to claim 2, ~~wherein for channel selection said receiver further comprises further comprising a third filtering means filter for the suppression of said in-phase signals signal being greater than~~ a set corner frequency; and a fourth ~~filtering means filter~~ for the suppression of said quadrature ~~signals signal~~ being greater than a set corner frequency.

4. (Currently Amended) A direct conversion receiver according to claim 2, wherein said first ~~filtering means filter~~ comprises a first AC coupling ~~means element~~ for producing a notch at the zero frequency of said in-phase signal; and said second ~~filtering means filter~~ comprises a second AC coupling ~~means element~~ for producing a notch at the zero frequency of said quadrature signal.

5. (Currently Amended) A direct conversion receiver according to claim 2, wherein said first filter and said second filter ~~filtering means~~ each comprise a high pass filter, the first

filter coupled to the output of a the first mixer and the second filter coupled to the output of the second mixer.

6. (Currently Amended) A direct conversion receiver according to claim 2, ~~wherein said receiver further comprises further~~ comprising a processor system for demodulation and processing said in-phase and quadrature signals and for controlling said ~~local oscillator frequency.~~

7. (Currently Amended) A GPS direct conversion receiver for processing a signal, ~~phase modulated radio signals that are centered at a carrier frequency for receiving digital information, the phase modulation extending a sideband above and below the carrier frequency, the receiver comprising:~~

~~a means for receiving and device for splitting said signals~~ signal, said means device having a first signal output and a second signal output, wherein said signal is a phase modulated radio signal centered at a carrier frequency for receiving digital information, the phase modulation extending a sideband above and below the carrier frequency;

~~a local an oscillator means tuned to a local oscillator for~~ providing a frequency and having a first frequency output and a second frequency output, said second frequency output having a 90° phase shift compared with said first output;

~~a first mixer means coupled to said first signal output and first frequency output for generating a baseband frequency in-phase signals signal;~~

a second mixer ~~means~~ coupled to said second signal output and second frequency output for generating a baseband frequency quadrature phase ~~signals~~ signal;

a first ~~filtering means~~ filter for the suppression of said in-phase ~~signals~~ signal centered at the zero frequency;

a second ~~filtering means~~ filter for the suppression of said quadrature ~~signals~~ signal centered at the zero frequency;

wherein the receiver is configured to provide an ~~local~~ oscillator frequency that is set equal to or about the carrier frequency plus an offset frequency, said offset frequency being equal to or about the ~~a~~ chip rate or a multiple of it for centering said ~~local~~ oscillator frequency at a notch of said sideband, and for centering said notch at the zero frequency of said baseband ~~signals~~ signal through mixing.

8. (Currently Amended) A GPS direct conversion receiver according to claim 7, wherein said first ~~filtering means~~ filter comprises a first high pass ~~filtering means~~ filter for producing a notch at the zero frequency of said in-phase signal; and said second ~~filtering means~~ filter comprises a second high pass filtering means filter for producing a notch at the zero frequency of said quadrature signal.

9. (Currently Amended) A method in a direct conversion receiver for processing a signal, modulated radio signals that are centered at a carrier frequency, the modulation extending a

~~sideband above and below the carrier frequency, the method comprising the steps of:~~

~~receiving and splitting said signals into a first signal output and a second signal output, said signal being modulated and centered at a carrier frequency, the modulation extending a sideband above and below the carrier frequency;~~

~~tuning a local oscillator frequency for generating a first frequency output and a second frequency output, said second frequency output having a phase shift compared with said first frequency output;~~

~~mixing said first signal output and first frequency output for generating a baseband frequency in-phase signals signal;~~

~~mixing said second signal output and second frequency output for generating a baseband frequency quadrature phase signals signal;~~

~~filtering out an in-phase signals signal centered at the zero frequency; and~~

~~filtering out a quadrature signals signal centered at the zero frequency;~~

~~setting said local oscillator frequency equal to or about the carrier frequency plus an offset frequency, said offset frequency being equal to or about the difference between the carrier frequency and a null frequency, said null frequency being centered at a notch of said sideband; and~~

centering said notch at the zero frequency of said baseband signals through mixing.

10. (Currently Amended) A method according to claim 9, wherein the method further comprises:

~~the steps of~~ high pass filtering said in-phase signal for producing a notch at the zero frequency of said in-phase signal; and

high pass filtering said quadrature signal for producing a notch at the zero frequency of said quadrature signal.

11. (Currently Amended) A method in a direct conversion receiver for processing a received radio signals signal, that are modulated and centered at a carrier frequency, wherein the frequency spectrum of a received signal is characterized by a main lobe and side lobes with successive ones of the lobes being separated by spectral null points, the spectral null points being located at multiples of a chip rate of the received signal, the modulation extending a sideband above and below the carrier frequency, the method comprising the steps of:

mixing a local an oscillator frequency signal with said received radio signals signal for generating baseband frequency signals, wherein said received signal is modulated and centered at a carrier frequency, wherein a frequency spectrum of the received signal is characterized by a main lobe and side lobes with successive ones of the lobes being separated by spectral null points, the spectral

null points being located at multiples of a chip rate of the received signal, the modulation extending a sideband above and below the carrier frequency;

filtering out generated ~~disturbing~~ direct current (DC) components of said baseband signals centered at the zero frequency;

setting said ~~local~~ oscillator frequency signal equal to or about the carrier frequency plus an offset frequency, said offset frequency being equal to or about the difference between the carrier frequency and a null frequency of said received signal spectrum, said null frequency being centered at a notch of said sideband; and

centering said notch at the zero frequency of said baseband signals through mixing.

12. (Currently Amended) A direct conversion receiver for processing a received signal~~modulated radio signals that are centered at a carrier frequency, the modulation extending a sideband above and below said carrier frequency, wherein the frequency spectrum of a received signal is characterized by a main lobe and side lobes with successive ones of the lobes being separated by spectral null points, the spectral null points being located at multiples of a chip rate of the received signal,~~ the receiver comprising:

a ~~means~~ splitter for ~~receiving and splitting said signals~~ signal, said ~~means~~ splitter having a first signal output and a second signal output, the received signal being a

modulated signal centered at a carrier frequency, the modulation extending a sideband above and below said carrier frequency, wherein a frequency spectrum of the received signal is characterized by a main lobe and side lobes with successive ones of the lobes being separated by spectral null points, the spectral null points being located at multiples of a chip rate of the received signal;

~~a local an oscillator means tuned to a local oscillator for~~
providing a frequency and having a first frequency output and a second frequency output, said second frequency output having a phase shift compared with said first frequency output;

a first mixer ~~means~~ coupled to said first signal output and first frequency output for generating a baseband frequency in-phase signals signal;

a second mixer ~~means~~ coupled to said second signal output and second frequency output for generating a baseband frequency quadrature phase signals signal;

a first ~~filtering means~~ filter for the suppression of said in-phase ~~signals signal~~ centered at the zero frequency;

a second ~~filtering means~~ filter for the suppression of said quadrature ~~signals signal~~ centered at the zero frequency;

wherein the receiver is configured for providing an local oscillator frequency that is set equal to or about the carrier frequency plus an offset frequency, said offset frequency being equal to or about thea difference between

the carrier frequency and a null frequency of said received signal spectrum, said null frequency being centered at a notch of said sideband, for centering said notch at the zero frequency of said baseband signals through mixing.

13. (Currently Amended) A receiver for processing a signal modulated radio signals that are centered at a carrier frequency, the modulation extending a sideband above and below said carrier frequency, the receiver comprising:

~~an antenna, an amplifier and a divider for receiving and~~
splitting said ~~signals~~ signal, said divider having a first signal output and a second signal output, wherein the signal is a modulated signal centered at a carrier frequency, the modulation extending a sideband above and below said carrier frequency;

~~a local an oscillator tuned to a local oscillator for~~
providing a frequency and having a first frequency output and a second frequency output, said second frequency output having a phase shift compared with said first output;

a first mixer coupled to said first signal output and said first frequency output for generating a baseband frequency in-phase signals signal;

a second mixer coupled to said second signal output and second frequency output for generating a baseband frequency quadrature phase signals signal;

a first filter for the suppression of said in-phase ~~signals~~
signal centered at the zero frequency;

a second filter for the suppression of said quadrature ~~signals~~
signal centered at the zero frequency;

wherein the receiver is configured for providing an local
oscillator frequency that is set equal to or about the
carrier frequency plus an offset frequency, said offset
frequency being equal to or about the difference between
the carrier frequency and a null frequency, said null
frequency being centered at a notch of said sideband, for
centering said notch at the zero frequency of said baseband
signals through mixing.

14. (Currently Amended) A receiver according to claim 13,
wherein, for channel selection, said receiver further comprises
a third filter for the suppression of said in-phase ~~signals~~
signal being greater than a set corner frequency; and a fourth
filter for the suppression of said quadrature ~~signals~~ signal
being greater than a set corner frequency.

15. (Previously Presented) A receiver according to claim 13,
wherein said first filter comprises a first AC coupling for
producing a notch at the zero frequency of said in-phase signal;
and said second filter comprises a second AC coupling for
producing a notch at the zero frequency of said quadrature
signal.

16. (Currently Amended) A receiver according to claim 13, wherein said ~~first~~ first filter and ~~the second filter~~ each comprise a high pass filter, the first filter coupled to the output of ~~athe first mixer~~ and the second filter coupled to the output of the second mixer.

17. (Currently Amended) A receiver according to claim 13, wherein said receiver further comprises a processor ~~system~~ for demodulation and processing said in-phase and quadrature signals and for controlling said ~~local~~ oscillator frequency.

18. (Currently Amended) A receiver for processing a received signal, ~~modulated radio signals that are centered at a carrier frequency, the modulation extending a sideband above and below said carrier frequency, wherein the frequency spectrum of a received signal is characterized by a main lobe and side lobes with successive ones of the lobes being separated by spectral null points, the spectral null points being located at multiples of a chip rate of the received signal, the receiver comprising:~~

~~an antenna, an amplifier and a divider~~ divider for receiving and splitting said ~~signals~~ received signal, said received signal being a modulated signal that is centered at a carrier frequency, the modulation extending a sideband above and below said carrier frequency, wherein a frequency spectrum of the received signal is characterized by a main lobe and side lobes with successive ones of the lobes being separated by spectral null points, the spectral null points being located at multiples of a chip rate of the received

signal, said divider having a first signal output and a second signal output;

~~a local~~ an oscillator ~~tuned to a local oscillator for~~ providing a frequency and having a first frequency output and a second frequency output, said second frequency output having a phase shift compared with said first frequency output;

a first mixer coupled to said first signal output and said first frequency output for generating a baseband frequency in-phase signals signal;

a second mixer coupled to said second signal output and said second frequency output for generating a baseband frequency quadrature phase signals signal;

a first filter for the suppression of said in-phase ~~signals~~ signal centered at the zero frequency;

a second filter for the suppression of said quadrature ~~signals~~ signal centered at the zero frequency;

wherein the receiver is configured for providing an local oscillator frequency that is set equal to or about the carrier frequency plus an offset frequency, said offset frequency being equal to or about the difference between the carrier frequency and a null frequency of said received signal spectrum, said null frequency centered at a notch of said sideband, for centering said notch at the zero frequency of said baseband signals through mixing.

19. (New) A direct conversion receiver comprising:

means for mixing an oscillator frequency signal with a received signal that is modulated and centered at a carrier frequency, the modulation extending a sideband above and below the carrier frequency, for generating baseband frequency signals;

means for filtering generated direct current components of the generated baseband frequency signals centered at a zero frequency;

means for adjusting the oscillator frequency to a frequency that is substantially equal to the carrier frequency and an offset frequency, the offset frequency being substantially equal to a difference between the carrier frequency and a null frequency that is centered at a notch of the sideband; and

means for centering the notch at the zero frequency of the baseband signals.

20. (New) The receiver of claim 19 further comprising:

means for filtering a portion of the in-phase signal that is greater than a set corner frequency; and

means for filtering a portion of the quadrature signal that is greater than a set corner frequency.

21. (New) The receiver of claim 19 further comprising:

means for producing a notch at the zero frequency of the in-phase signal; and

means for producing a notch at the zero frequency of the quadrature signal.

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